

Dew, Wendy

From: Smith, Margo
Sent: Thursday, June 12, 2014 3:36 PM
To: Morlock, Nancy
Cc: Leonard, Laura
Subject: FW: Air Program Shale/Sands info
Attachments: Red Leaf Resources.zip

Nancy,

I also put Laura in touch with the air program so that she could have access to the information while I am away.

Margo

From: Law, Donald
Sent: Thursday, June 12, 2014 3:27 PM
To: Leonard, Laura
Cc: Smith, Margo
Subject: Air Program Shale/Sands info

Hi Laura. You most likely don't remember but I introduced myself to you after the RLT meeting you were at a couple weeks ago. Margo asked me to unload some info on you about what the air program has on these sources.

The zip file is our defacto file on Red Leaf. We discovered about a year ago that our file had been "misplaced" and has yet been found. I've tried to gather what we had on the source from other areas. Its best to open it in Internet Explorer.

I'm also sending a copy of an email I sent to Joan Card giving a latest and greatest on what we know about these sources.

In the interest of saving some time and rather than sending a large spreadsheet with information not in context, here is a narrative on the other facilities that have contacted the air program at one time or another and the information we have on locations of operations. I've also dramatically cut down on recipients as I didn't want to flood people's inbox with info they may feel is not pertinent to their interests.

Red Leaf :

In addition to the Seep Ridge location we discussed at the previous meeting Red Leaf leases extensive tracts northeast of the Seep Ridge location. These are referred to as the "Holiday Block" on the Red Leaf website, and were discussed with the company when they met with EPA in 2008. This location is predominately in Township 12S Range 24E and Township 12S Range 25E.

Ambre Energy:

Ambre Energy appears to be the successor or partner in a company we initially knew as Millennium Synfuels. This company has never met directly with EPA and there is very little in the file describing their operations. According to State of Utah School and Institutional Trust Lands Administration (SITLA) website,

they have several leased tracts spread out around the interior of the Reservation. Their Wiki page has the following:

“Ambre Energy operates a small Oil-Tech-type of shale oil extraction pilot plant and 34,000 acres (140 km²) of oil shale leases, approximately 40 miles (64 km) southeast of Vernal, Utah. In Oil-Tech process, crushed oil shale is lifted by a conveyor system to the vertical retort, and is loaded into the retort from the top. The retort consists of a series of connected individual heating chambers, stacked atop each other. Heating rods extend into the centers of each of these chambers. The feed oil shale is heated to increasingly higher temperatures as it moves down the retort, attaining a temperature of 1,000 °F (540 °C) in the lowest chamber. The gases and vapors are vacuumed into a condensing unit. The spent shale is used for pre-heating feed oil shale.^{[2][3]} The advantages of this technology are its modular design, which enhances its portability and adaptability, its low water requirements, its heating efficiency, and the relatively high quality of the resulting product.^[3]”

This website is the first I have heard that they actually have an operating facility. I do not know if Utah is aware of this facility.

Enefit Energy:

Enefit is an Estonian owned oil shale company that was previously known as OSEC. Enefit would be operating a large, traditional oil shale retort facility. This is a process that they know intimately as oil shale is the primary source of fossil fuel native to Estonia. The company has met with the air program previously to discuss the project and to work with locating metrological data for the preparation of submitting a PSD permit application for the production facility.

The own a large combination of state school trust land, private land, BLM leases (R&D and Preferential) along with options to purchase more private land.

I’ve included a map from their website indicating the scope and coverage of this area. It is very near Bonanza, Utah and touches the Colorado border on its eastern edge. Some of their holdings can be found on the SITLA website under the owner EAO State Leases LLC.

PR Springs:

As I mentioned earlier, PR Springs was previously known as Earth Energy and met with EPA in 2008. This facility is located on the southern edge of the reservation, on the border of Grand and Uintah counties. According to the SITLA website they have leases for the entirety of Township 16S Range 22E (outside reservation boundary) and half of Township 16S Range 23E (also outside Reservation boundary. The lease all SITLA leasable land in this T/R).

When it was discussed with the air program, the mining operations would be located outside the reservation boundary with the processing equipment located inside the exterior boundary. When I asked them about this, they verbally stated it was due to road access.

These are all the shale/sand companies that I can recall that have met with the air program and have still tangentially come up in conversations/news about operations in the area.

After you go through this, I can sit down and discuss with you on a more technical basis the types of processes and how it fits into the Unita Basin.

As a general rule though...Oil Shale isn't "shale" it is a type mudstone. Geologically speaking its dead "dino" ooze that didn't cook long enough to become crude oil. The main target from processing shale is called kerogen. Oil shale production is much more prevalent in eastern Europe (Estonia/Latvia/Lithuania/Finland) from the company Eesti Energia known as Enefit in the US. Petrobras is a Brazilian company that also is heavily into oil shale business.

Tar Sands is the opposite. It is "dino" ooze that has cooked too long. Instead of kerogen, it is processed to bitumen, which is pretty darn close to road tar. Canada is the most noteworthy processor of tar sand, with multiple companies having stakes in operations up there.

The key thing here is Utah and Colorado are not eastern Europe/Brazil/Canada. None of the production methods there really directly comport to US operations, with the possible exception of Enefit's. Everyone seems to have a different approach and everyone states theirs is amazingly environmentally friendly with zero emissions. Further, you can't even use the same production methods in Utah that you would have to use in Colorado due to various geological conditions.

Of course I'm guessing you already know this and I'm boring you to tears. If you have specific questions, I'm in M-Th and hopefully will be here all next week when Margo will be out and you will be running with scissors. If you have any questions, I'm on the 7th floor or at 312-7015.

DJ Law

From: Smith, Margo
Sent: Thursday, June 12, 2014 3:03 PM
To: Law, Donald
Cc: Leonard, Laura
Subject: Red Leaf Air Permitting Information

Hi DJ,

Here is Laura's e-mail address. Thank you!

Margo

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